APPENDIX A

STATEMENT BY JAMES V. HALL, MEMBER, HAWAII STATE REAPPORTIONMENT ADVISORY COUNCIL, BEFORE THE HAWAII STATE REAPPORTIONMENT COMMISSION, 8/9/01

Mr. Chairman, Members of the Reapportionment Commission, I would like to make a brief statement about the proposed "Canoe Districts" for every basic island unit. I believe that the use of "Canoe Districts" is **unfair, unpopular, unworkable, unconstitutional, and worst of all, unnecessary.**

I have prepared a paper explaining why this is so. This paper has been distributed to the commission members and copies are available to those who wish to obtain a copy.

In conversations with other Advisory Council Members, particularly those from the Neighbor Islands, it is apparent that the majority of them agree with my assessment. Hawaii's experience with twenty years of canoe districts has proven these assumptions correct -- **unfair, unpopular, unworkable, unconstitutional, and unnecessary**.

In essence, from my research I have concluded that sheer mathematical exactitude is neither a U.S. nor a Hawaii Constitutional imperative.

The solution is simple. Use the Hawaii Constitutionally mandated method of equal proportions to determine the number of *whole* seats each basic island should have in both houses of the legislature. For the second step in the two-tier process, district lines should then be drawn. Where there are numerical inequities, the final lines should be drawn so as to *balance* over-representation in one house with under-representation in the other. This technique was used by the 1968 Con-Con in drawing up the new plans after the original districting plan was found unconstitutional by the U.S. Supreme Court (*Burns v. Richardson*). The Con-Con delegates drew the Kauai District under-representing Kauai in the Senate with one seat and over-representing them with three seats in the House. Even though the deviations were exceedingly large, this stratagem was found to be constitutional and is exactly the same problem we face today.

Thank you. I would be glad to answer any questions.

THE "NO-CANOE" PLAN

Canoe Districts are unfair, unconstitutional, and offend the principle of equal protection under the law

James V. Hall
Member, Hawaii State Reapportionment Advisory Council

1. The situation: The Hawaii State Reapportionment Commission has prepared a draft plan that would create four "canoe" districts (i.e., legislative districts that extend beyond the boundaries of the basic island unit). The proposed plan would create one house and one senate district to be shared by Oahu and Kauai, and one house and one senate district to be shared by Maui and the island of Hawaii. No legislator who has represented a "canoe" district likes such districts. They are almost forced to neglect the smaller end of the "canoe." For example, the existing "canoes" connect Hana, Maui to Hanalei Kauai a distance of 247 air miles [327 km] [214 nautical miles]. This does not include time to travel to an inter-island airport in order to board a plane. Add car rental or taxi, overnight at a hotel, and $130 roundtrip and suddenly attending community meetings at the small end of the canoe becomes a major undertaking for a part-time legislator. Consequently the citizens living in the small end of the canoe fit the descriptions outlined in *Reynolds v. Sims* (377 U.S. at 565, 84 S. Ct. at 1383):

- "Full and effective participation by all citizens in state government requires, therefore, that each citizen have an equally effective voice in the election of members of his state legislature" and
- "The basic principle of representative government remains, and must remain, unchanged -- the weight of a citizen's vote cannot be made to depend on where he lives..." (377 U.S. At 567, 84 S.Ct. at 1384).

2. Solution: The solution is a basic one. Since the proposed canoe districts are located preponderantly in one basic island unit, then the large end of the canoe simply is assigned the entire district. For example, when determining precisely how many house or senate seats a basic island unit is assigned, one simply divides the ideal state house or senate district into the total adjusted population. Hawaii is then qualified for 3.29 senate seats and 6.72 house seats. These are rounded off to 3 senate and 7 house for Hawaii. Maui would get 2.85 senate (3) and 5.82 house seats (6). Kauai would get 1.3 (1) senate seats and 2.65 (3) house seats. Oahu 35.82 (35) and 17.56 (18). The key is to balance overrepresentation in one house with under representation in the other house. (See accompanying table -- "The No-Canoe District Chart")

3. Legal Justification: The United States Supreme Court in *Reynolds v. Sims*, 377 U.S. 533, remarked that "apportionment in one house (of a bicameral legislature) could be arranged so as to balance off minor inequities in the representation of certain areas in the other house."

The Hawaii Supreme Court has also passed judgment on such a possibility. Citing not only *Reynolds v. Sims* but *Mahan v. Howell*,, 410 U.S. 315 (1973); *Burns v. Richardson*, 384 U.S. 73 (1966); and *Maryland Committee for Fair Representation v. Tawes*, 377 U.S. 656 (1964) the Hawaii Supreme Court in *Blair v. Ariyoshi*, No. 5537, November 15, 1973 that the "method of 'equal proportions' as set forth in paragraph 11, Article III, Section 4, of the Constitution of the State of Hawaii, should be construed to permit the Reapportionment Commission to consider the effect of apportionment in one house of the legislature in balancing off inequities in the representation of certain areas in the other house."

They further wrote that when using the method of equal proportions the final house seat was supposed to be assigned to Oahu. They wrote; "The factual situation is that the basic island unit of Kauai is underrepresented in the senate and to balance off this under representation, the respondents allocated the last house seat allocable to the basic island unit of Oahu to the basic island unit of Kauai."

The precise situation pertains today (see accompanying table-- "The No-Canoe District Chart").)

4. Hawaii State Constitutional Provisions:

BASIC ISLAND UNITS
The Two-tiered Approach

The State Constitution of Hawaii Article IV states:

APPORTIONMENT AMONG THE BASIC ISLAND UNITS

Section 4. The commission shall allocate the total number of members of each house of the state legislature being reapportioned among the four basic island units namely: (1) the island of Hawaii, (2) the islands of Maui, Lanai, Molokai and Kahoolawe, (3) the island of Oahu and all other islands not specifically enumerated, and (4) the islands of Kauai and Niihau, using the total number of permanent residents in each of the basic island units and computed by the method known as the method of equal proportions; except that no basic island unit shall receive less the one member in each house.

This is the beginning point. Once the number of seats in each basic island unit is determined then start delineating districts basic island unit by basic island unit. Two-tiered simply means that once the number of districts in each basic island unit is determined, then one redistricts within each basic island unit.

APPORTIONMENT WITHIN BASIC ISLAND UNITS

Section 6. Upon the determination of the total number of members of each house of the state legislature to which each basic island unit is entitled, the commission shall apportion the members among the districts there in and shall redraw district lines where necessary in such manner that for each house the average number of permanent residents

per member in each district is as nearly equal to the average for the basic island unit as practicable.

In effecting such redistricting, the commission shall be guided by the following criteria:

1. No district shall extend beyond the boundaries of any basic island unit.
2. No district shall be so drawn as to unduly favor a person or political faction.
3. Except in the case of districts encompassing more than one island, districts shall be contiguous.
4. Insofar as practicable, districts shall be compact.
5. Where possible, district lines shall follow permanent and easily recognizable features, such as streets, streams and clear geographical features, and, when practicable, shall coincide with census tract boundaries.
6. Where practicable, representative districts shall be wholly included within senatorial districts.
7. Not more than four members shall be elected from any district.
8. Where practicable, submergence of an area in a larger district wherein substantially different socio-economic interests predominate shall be avoided.

5. Historical Background for Basic Island Unit Concept *(Excepts from the Reapportionment Standing Committee in the Constitutional Convention of 1968).*

"Your Committee does not take issue with the basic philosophy underlying the one-man, one-vote principle but it is virtually unanimous in its opinion that rigid adherence to the principle may result in depraving substantial elements of our population of any effective representation in the state legislature in matters of government. This danger is occasioned largely by two factors which are unique to Hawaii. These are Hawaii's geographical structure wherein our four counties are each basic and independent island units separated by from thirty to seventy miles of open international ocean. The second factor is Hawaii's highly simplified and centralized government structure. No other state in the union posses either of these characteristics and of course, no other state even remotely approaches the situation resulting from a combination of both.

"Geographically, Hawaii's structure produces a number of results which must be considered in evaluating the needs of any governmental structure for the State. These are familiar to most of us but they will bear repetition here:

- Islands or groups of islands in Hawaii have been separate and distinct fundamental units since their first settlement by human beings in antiquity. As population grew, separate monarchies developed and each of the present counties was an independent free nation. It was not until about 1795, when Kamehameha I conquered and united the islands presently constituting Maui, Hawaii and Oahu under unified rule, that any abiding superior government existed. Kauai was never conquered by Kamehameha I but acquiesced to Kamehameha I in 1810. The first constitution of the nation of Hawaii, granted by King Kamehameha III in 1840 provided that there would be four governors "over these Hawaiian Islands -- one for Hawaii -- one for Maui -- and one for Kauai -- and the adjacent islands." The same constitution provided for a council

of nobles to establish laws for the nation chosen from the four island units. Thereafter in every constitution of the nation, the territory and the state, the island units have been recognized as separate political entities.

- Hawaii's insular separation has had effects far more pervasive, however, than simply the establishment of historically independent governmental units. Each of islands has had its unique geographic, topographic and climatic conditions which have produced strikingly different patterns of economic progress and occupational pursuits. Thus each unit og government has its own peculiar needs and priorities which in some instances may be quite different from any other county.

- Statewide news media are centralized on the island of Oahu, and concentrate their local news heavily, as might be expected, on Oahu matters. The people of Oahu therefore, constituting about 80% of the total population know a great deal about the problems facing their island but very little about the problems of any Neighbor Island.

- **It is not possible, given Hawaii's geography and its history, to manufacture tenable senatorial or representative districts by combing any parts of two counties. The result in any such case would always be the submergence and effective disenfranchisement of the voters in that county which constituted the lesser number. Consequently the people living in any given Neighbor Island unit can attain effective representation only form persons elected with that unit."**

7. **Supreme Court opinion on Canoe Districts:**

Canoe Districts: *Burns v. Gill*, essentially a review of *Burns v. Richardson* foresaw the possibility of canoe districts and issued the following cautionary opinion:

"... in Hawaii the rigid implementation of the one-man, one-vote principle at the State legislative level, an end which could be achieved only by deliberately and artificially chopping up communities with mutuality of political interest and attaching them to other areas with no basic mutuality between the two whatsoever, would result in a complete loss of meaningful representation to a multitude of island voters. The evidence before us satisfies this court that the two-tier apportionment plan adopted by the Constitutional Convention, i.e., initially apportioning all representative and senators among basic island units and thereafter drawing district lines within the islands themselves, now gives fuller an more meaningful representation to the voters of the several districts within each basic island unit than they could possibly have under any other scheme of apportionment. This court reaches that result in spite of the fact that differences in the number of voters per district exist not only between the several districts within each basic island unit, but also exist between

districts throughout the State. This court is satisfied that the geographical insularity and the past and present political and social history of the several basic island units virtually compelled the Convention to adopt the method of equal proportions in districting the State of Hawaii."

8. Star-Bulletin Editorial, August 2, 2001

Editorials

Thursday, August 2, 2001

It's time to sink canoe district idea

The issue: The state Reapportionment Commission has proposed an increase in legislative districts spread over several islands.

THE concept of disconnected legislative districts makes no sense except in strictly mathematical terms. Most states would not seriously consider such a scheme, and the notion of chopping off part of one state and combining it with another to equalize representation in the U.S. House would bring howls of laughter.*The Reapportionment Commission should therefore go back to the drawing board.

*(Note: Method known as "method of equal proportions" was challenged in the Supreme Court, No. 91-860 United States Department of Commerce v. Montana, [March 31, 1992].

The opinion in part: "There is some force to the argument that some historical insights that informed our construction of Article 1, Par 2, in the context of intrastate districting should apply here as well.(*The State of Montana challenging the method of equal proportions because it does not allow for mathematical exactitude for Congressional representation from state to state.*) As we interpreted the constitutional command that Representatives be chosen 'by the People of the several States' to require the States to pursue equality in

representation, we might well find that the requirement that Representatives be apportioned among the several States 'according to their respective Numbers' would also embody the same principle of equality. Yet it is by no means clear that the facts here establish a violation of the *Wesberry* standard. In cases involving variances within a State, changes in the absolute differences from the ideal produce parallel changes in the relative differences. Within a State, there is no theoretical incompatibility entailed in minimizing both the absolute and the relative differences.]

"...What is the better measure of inequality -- absolute difference in district size, absolute difference in share of a Representative, relative difference in district size or share? Neither mathematical analysis nor constitutional interpretation provides a conclusive answer. In none of these alternative measures of inequality do we find a substantive principle of commanding constitutional significance. The polestar of equal representation does not provide sufficient guidance to allow us to discern a single constitutionally permissible course.

"A State's compliance with *Wesberry's* 'high standard of justice and common sense' begins with a good faith effort to produce complete equality for each voter.")

Hawaii's Legislature now includes such "canoe" districts, in violation of the state Constitution, which says, "No district shall extend beyond the boundaries of any basic island unit," essentially meaning the county boundaries. The commission has reconfigured the lines to make them even more convoluted. Commission Chairman Wayne Minami says the panel "just drew the lines as the new population changes led us to." Limiting the criteria to population left common sense on the cutting room floor, along with constitutional considerations.

Proposed changes mean that residents of northern Kauai, now paired in the Senate with eastern Maui, would instead share a senator with voters in Oahu's suburban Kailua. In the House, most northern Kauaians would have their own representative, but others would be included in a district with the Schofield Barracks area of Oahu. In both House and Senate races, those eastern Maui voters' new ballot mates would be residents of Puna on the Big Island.

Combining Kauai with Niihau and Maui with Molokai and Lanai are understandable, because they are in the same counties, and neither Niihau, Lanai nor Molokai are populated enough to merit a full seat in either the House or

Senate. Creating other canoe districts by carving up the islands, including Oahu, would result -- as it does now -- in conflicted representation.

A better pattern would result in Kauai and Niihau having two senators and three representatives. Maui, Molokai and Lanai should have three senators and six House members, as should the Big Island. Individual districts could be drawn within those island combinations. That would result in eight senators and 15 House members representing the neighbor islands, one more in each chamber than they have now.

The House and Senate could achieve the desired tie-breaking odd number by adding or subtracting one seat in each chamber from Oahu, relieving residents of the Schofield Barracks area and Kailua from sharing a lawmaker with a neighbor island. Increasing the number of House and Senate districts would require a constitutional amendment.

As things now stand, a voter in an affected district could challenge the "canoe" system in court. That effort most likely would be successful, throwing the Legislature into disarray.

The Reapportionment Commission should thus sink its canoes, jump overboard and swim to shore as it seeks to bring its proposals into conformity with the Constitution and common sense.

THE NO-CANOE DISTRICT CHART							
District	Adjusted Population[1]	Ideal House District	No. House seats[2]	Percent Deviation[3]	Ideal Senate District	No. Senate Seats[4]	Percent Deviation[5]
State	1,211,537	22,020	51	0%	44,922	25	0%
Oahu	788,746	22,535	35	-2.34%	43,819	18	+2.45%
Hawaii	147,877	21,125	7	+4.06%	49,292	3	-9.73%
Maui	128,074	21,345	6	+3.06%	42,691	3	+4.97%
Kauai	58,335	29,168	3	+11.69%[6]	58,335	1	-29.85%[7]

[1] Based on removing 42,430 non-resident military dependents from the base
[2] Rounded off
[3] Determined by dividing ideal statewide house district into basic island unit ideal house district
[4] Rounded off
[5] Determined by dividing ideal statewide senate district into basic island unit ideal senate district
[6] Allowed House Deviation (Kauai) under 1968 plan was +16.0%
[7] Allowed Senate Deviation (Kauai) under 1968 plan was -23.5%

APPENDIX B

BENJAMIN J. CAYETANO
GOVERNOR

EARL I. ANZAI
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August 9, 2001

2001 Reapportionment Commission
Hawaii State Capitol, Room 411
415 Beretania Street
Honolulu, Hawaii 96813
Attn: Mr. Wayne Minami, Chairperson

Re: Dependents of Non-Resident Military

Dear Mr. Minami:

The 2001 Reapportionment Commission has asked whether its decision to include the dependents of non-resident military ("DNRM") in the population base that the Commission will be using to reapportion and redistrict state legislative districts violates the Constitution of the United States ("Federal Constitution"), the Constitution of the State of Hawaii ("State Constitution"), or other applicable law. Based on our review of the issues, the Commission's decision does not clearly or necessarily violate the Federal Constitution, State Constitution, or other applicable law. However, based on historical policies and precedent, the Commission may wish to reconsider its decision and exclude the DNRM from the reapportionment base. If the Commission does decide to exclude the DNRM from the reapportionment base, it should do so with the understanding that such a decision might be challenged as violating the Federal Constitution.

We understand that the Commission voted to include DRNM in the reapportionment base because: (1) the DNRM did not themselves express that they were claiming residence in a state other than Hawaii; (2) the Commission staff could locate no objective evidence that the DNRM would follow their military member in claiming residence in a state other than Hawaii; (3) some Commissioners felt that the DNRM work in Hawaii, pay taxes, go to Hawaii schools, make use of state public services, are part of the Hawaii community, are eligible to vote in Hawaii, and should be counted for representation purposes; and (4) under the Federal Constitution, some Commissioners felt it was better to err on over-inclusiveness versus under-inclusiveness in the reapportionment base. In connection with item (2), the Commission staff reported that they were unable to find any basis for the statement in the 1991 Reapportionment Commission's Final Report that 98% of the military dependents followed the state of residence of their military member.

Following the Commission's decision, several persons have asked the Commission to reconsider its decision to include the DNRM in the reapportionment base. They claim that the State Constitution requires the Commission to use a reapportionment base of "permanent residents", and that the DNRM do not qualify as permanent residents. In support of this claim, they argue that the voters who approved use of the permanent resident reapportionment base in 1992 understood that the DNRM would be excluded from that base. This is based on a Fact Sheet that appears to have been issued by the House Majority Staff Office and sent to county clerks for posting at polling places and to absentee voters. In explaining the proposed constitutional amendment regarding the permanent resident reapportionment base, the Fact Sheet notes that the 1991 Reapportionment Commission recommended that the legislature reapportionment base be changed from registered voters to permanent residents. The Fact Sheet goes on to state:

> Initially, the Commission had intended that the population base would consist of permanent residents, derived from subtracting minors and nonresident military and their dependents from the total population figures provided in the 1990 Census. However, overwhelming testimony persuaded the Commission to include minors in the count.

Proponents of excluding DNRM from the reapportionment base have also argued that dependents of military personnel in Hawaii may not be "residents" under state income tax laws. Finally, they have argued that inclusion of the DNRM will result in outer-island voters having their votes/representation diluted versus voters in Oahu districts that have substantial numbers of DNRM.

Sections 4 and 6 of Article IV of the State Constitution provide for the Commission to reapportion and redistrict the state legislature based on the number of "permanent residents" in Hawaii. A fundamental principle in construing constitutional provisions is to give effect to the intention of the framers and the people adopting it. Hirono v. Peabody, 81 Hawai'i 230, 232, 915 P.2d 704 (1996) citing Convention Center Auth. v. Anzai, 78 Hawai'i 157, 167, 890 P.2d 1197 (1995). If the words used in the constitution are clear and unambiguous, they are to be construed as written, and a court is not at liberty to search for their meaning beyond the instrument itself. State Ex Rel. Bronster v. Yoshina, 84 Hawai'i 179, 186, 932 P.2d 316 (1997); State v. Kahlbaun, 64 Haw. 197, 201, 638 P.2d 309 (1981). However, if the text is ambiguous, extrinsic aids may be examined to determine the intent of the framers and the people adopting the proposed constitutional amendment. Pray v. The Judicial Selection Commission, 75 Haw. 333, 343, 861 P.2d 723 (1993); Kahlbaun, 64 Haw. at 201-202. In gleaning this intent, the Hawaii Supreme Court has noted that an examination of the debates, proceedings and committee reports of the framers may be useful. Cf. Pray, 75 Haw. at 343 (an examination of the debates, proceedings and committee reports of the Constitutional Convention is useful). It has also noted that it can look "to the understanding of the voters who adopted the constitutional provisions". Kahlbaum,

64 Haw. at 202 citing State v. Lewis, 559 P.2d 630 (Alaska 1977) and People ex rel. Scott v. Briceland, 359 N.E.2d 149 (Ill. 1976). Notwithstanding the foregoing, the Hawaii Supreme Court has held that extrinsic evidence as to the intentions of the framers and people adopting a constitutional provision is not binding on the Court, and that the persuasive value of such evidence depends on the circumstances of each case. Pray, 75 Haw. at 373. In cases of an ambiguous constitutional amendment, the Hawaii Supreme Court has also looked to the object to be accomplished and the evils sought to be remedied by the amendment, along with the history of the times and the state of being when the constitutional provision was adopted. Kahlbaun, 64 Haw. at 202; HGEA v. County of Maui, 59 Haw. 65, 81, 576 P.2d 1029 (1978).

In this case, the term "permanent resident" as used in Article IV of the State Constitution could be held to have a plain and unambiguous meaning. The plain meanings of "permanent" and "resident" or "residence" indicate a lasting, stable or fixed place of abode, a personal presence at a place of abode with no present intention of definite or early removal and with a purpose to remain for an indefinite period of time. See Webster's Third New International Dictionary, Oxford American Dictionary, and Black's Law Dictionary (5th Edition 1979). This meaning is congruent with definitions applied by Hawaii courts to the term "domicile" which has sometimes been equated with permanent residence. In Re Lee Yit Kyau Pang, 32 Haw. 699, 704 (1933). Hawaii courts have defined "domicile" as requiring: (1) physical presence at a particular place; and (2) the intention to remain there permanently, or as is sometimes said, to make the place his home with no present intent to leave at any foreseeable time. Blackburn v. Blackburn, 41 Haw. 37, 40-41 (1955); Yamane v. Piper, 51 Haw. 339, 340, 461 P.2d 131 (1969) (holding that a person who moved away from Hawaii under a two year employment contract could have intended to change his domicile for tax purposes since, notwithstanding the short term nature of his contract, he could have intended to reside there indefinitely). Hawaii's tax laws have also focused on a taxpayer's intentions in defining the taxpayer's domicile. See Hawaii Revised Statutes ("HRS") § 235-1 and Hawaii Administrative Rules ("HAR") § 18-235-1.03. While it is true that a spouse of a military member stationed in Hawaii may remain a nonresident for tax purposes, the spouse must have the "intention to leave Hawaii when their spouse is transferred, discharged or graduates". See HAR § 18-235-1.09. Under the tax laws, questions of domicile and residence are questions of law and fact and depend on the individual's circumstances. See HAR § 18-235-1.08. If the foregoing meaning is attached to the term "permanent resident" as used in Article IV of the State Constitution, DNRM would not necessarily be excluded from the state's reapportionment base since consideration may be given to their intentions as well as other factors indicating the nature of their domicile or residence in this state.

On the other hand, words like "residence" may have different meanings depending on the context of their usage. Appeal of Irving, 13 Haw. 22, 24 (1900). If a court found the term "permanent resident" to be ambiguous based on the context of its usage, it could consider: (1) the legislative history of H.B. 2327 which proposed the permanent resident reapportionment base;

(2) the Fact Sheet as it pertains to the intentions of the voters adopting the permanent resident reapportionment base; and (3) the objects sought to be achieved or the evils to be avoided by the 1992 constitutional amendment changing the reapportionment base to permanent residents. The legislative history of H.B. 2327 is spare. However, the Senate Standing Committee Report on H.B. 2327 can be read as indicating an intention to adopt the permanent resident base selected by the 1991 Reapportionment Commission. The 1991 Reapportionment Commission's permanent resident base excluded the DNRM. As noted above, the Fact Sheet can be read as indicating that the permanent resident reapportionment base would exclude the DNRM. However, it should be noted that there is little evidence as to how widely the Fact Sheet was distributed and how many voters read it before voting. With respect to the objects sought to be accomplished by the 1992 constitutional amendment, various documents and court cases show that Hawaii has historically sought to exclude the military and their dependents from the reapportionment base because of fears that the large and fluctuating military population in Hawaii could distort legislative representation, i.e., that reapportionment could be distorted if a large military population happened to be in Hawaii during a census year due to unusual military circumstances, and that much of Hawaii's military population is concentrated in a few Oahu districts. While the military population is a smaller percentage of the total Hawaii population than it has been in the past, it is still a significant component of the total population, could fluctuate in the future, and appears to be concentrated in certain areas of Oahu. Based on the foregoing, a court could find that "permanent resident" as used in Article IV of the State Constitution is meant to exclude the DNRM from the reapportionment base.

At this time, the law is not sufficiently clear to state that the Commission would necessarily be violating the State Constitution by including the DNRM in its reapportionment base. We cannot say that the term "permanent residents" will be defined by a court to exclude the DNRM. Cf. Longway v. Jefferson County Bd. of Sup'rs, 628 N.E.2d 1316 (N.Y. 1993) (New York Court of Appeals holds that reapportionment base statutorily defined as "residents, citizens, or registered voters" did not necessarily exclude military personnel, incarcerated felons and occupants of group homes); Hickel v. Southeast Conference, 846 P.2d 38, 54-56 (Alaska 1992) (even though Alaska Constitution provided for reapportionment on basis of civilian population, Alaska Supreme Court upheld Governor's and Reapportionment Board's decision to use total population base due to lack of reliable data on non-resident military in Alaska). However, the Commission may wish to give due consideration to excluding DNRM from its reapportionment base. Such an exclusion appears to be in accordance with historical state policies, the precedents adopted by prior reapportionment commissions, and possibly the intention of the legislature and voters who approved the 1992 constitutional amendment. As discussed below, while the exclusion of DNRM may be subject to challenge under the Federal Constitution, there is court precedent that can be used to support such an exclusion.

Before discussing the Federal Constitution as it pertains to reapportionment bases, the Commission raised a question as to whether or not it had discretion to include or exclude DNRM

from the reapportionment base. If the inclusion or exclusion of DNRM is held to be a constitutional or purely legal issue, Hawaii courts would probably hold that the Commission had no discretion to decide that issue and would grant no deference to the Commission's decision. Ka Pa'akai O Ka'aina v. Land Use Com'n, 94 Hawai'i 31, 41, 7 P.3d 1068 (2000). Based on the law applicable to executive administrative agencies, if the issue were considered to be one of fact, a mixed question of law and fact, or an administrative interpretation of a broad and unclear legislative mandate, a Hawaii court might grant some discretion and deference to the Commission. Southern Foods Group, L.P. v. State of Hawai'i, DOE, 89 Hawai'i 443, 452-453, 974 P.2d 1033 (1999); In re Water Use Permit Applications, 94 Hawai'i 97, 144-145, 9 P.3d 409 (2000). In this case, it is unclear whether the decision to include or exclude DNRM involves constitutional or purely legal issues. In addition, it is unclear as to whether the Commission would be treated with the same deference as executive administrative agencies since it differs in many respects from such agencies. Thus, while the Commission should make sure that its decision is not arbitrary or capricious, and is supported by substantial and reliable evidence in the record, the Commission should not count on its decision being deferred to by Hawaii or Federal courts. Cf. Hickel v. Southeast Conference, 846 P.2d at 54-56 (Alaska Supreme Court upholds Governor's and Reapportionment Board's decision to use total population versus civilian population base because Governor's and Reapportionment Board's decision was rationally based and was made after a "hard look" at alternatives).

Finally, based on the current state of the law, we cannot say that the inclusion or exclusion of DNMR would violate the Federal Constitution. While it could be argued that the inclusion of DNRM in the reapportionment base dilutes the votes of persons in legislative districts without substantial numbers of DNRM, we are unaware of any federal decision that has found the use of a broader versus a narrower reapportionment base to be unconstitutional. In this respect, the majority decision in Garza v. County of Los Angeles, 918 F.2d 763 (9th Cir. 1990) indicated that the use of a "total population" reapportionment base might be required by the Equal Protection Clause of the Federal Constitution since the purpose of redistricting is not only to protect the voting power of citizens but also to ensure equal representation for equal numbers of people regardless of their ability to vote. Id at 774-775. In addition, despite the fact that the Alaska Constitution provided for reapportionment based on "civilian population", the Alaska Supreme Court upheld the use of a total population reapportionment base against claims that such would violate the equal protection clause of the Alaska Constitution by diluting the votes/representation of residents of districts without large military population. Hickel v. Southeast Conference, 846 P.2d at 54-56; See also Longway v. Jefferson County Bd. of Sup'rs, 628 N.E.2d at 1318 (New York Court of Appeals notes that tendency to include rather than exclude classes of persons for apportionment purposes appears to be the preference under federal constitutional law).

Similarly, it can't be said that the exclusion of DNRM would clearly violate the Federal Constitution. While the Garza decision indicated that total population should be the basis for

reapportionment, other federal courts have held that the states should be allowed to select reapportionment bases conducive to their own particular circumstances. Daly v. Hunt, 93 F.3d 1212, 1225 (4th Cir. 1996); Chen v. City of Houston, 206 F.3d 502, 526-528 (5th Cir. 2000). Further, the exclusion of non-resident military and their dependents appeared to be satisfactory to the United States Supreme Court in Richardson v. Burns, 384 U.S. 73 (1966), and the United States District Court for the District of Hawai'i in Travis v. King, 552 F.Supp. 554 (1982) (the 1991 Reapportionment Commission's Final Report indicated that the reapportionment plan approved by the District Court excluded non-resident military and their dependents). In addition, at least one court outside of Hawaii has approved the exclusion of non-resident military and their dependents from a reapportionment base. Carpenter v. Hammond, 667 P.2d 1204 (Alaska 1983) appeal dismissed 464 U.S. 801 (1983) citing Groh v. Egan, 526 P.2d 863 (Alaska 1974).

Notwithstanding the foregoing, if the Commission decides to exclude DNRM from the reapportionment base, the Commission should understand that the exclusion may be subject to challenge under the Federal Constitution. As noted above, the Garza decision indicates that a total population base should be used for reapportionment even in state or county districting. In addition, a DNRM could claim that the wholesale exclusion of DNRM from the reapportionment base – without any chance for individual DNRM to prove that they are permanent residents – violates the Equal Protection Clause. Davis v. Mann, 377 U.S. 678, 691 (1966) (court notes that discrimination against a class of persons such as the military, merely because of their employment, is constitutionally impermissible); cf. Saenz v. Roe, 526 U.S. 489 (1999) (holding that one component of the constitutionally protected right-to-travel and the Fourteenth Amendment is the right of any United States citizen to become a citizen of any State of the Union, by bona fide residence therein, with the same rights as other citizens of the State).

Very truly yours,

Brian Aburano

Brian Aburano
Deputy Attorney General

APPROVED:

EARL I. ANZAI
Attorney General

APPENDIX C

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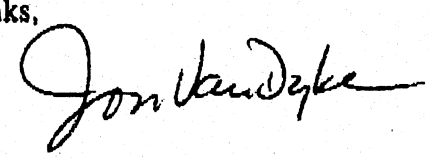
August 9, 2001

To Reapportionment Commission Chair Wayne Minami
Fax Number 587-3905

I would be grateful if you could distribute the attached memo to the members of the Reapportionment Commission.

Thanks,



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August 9, 2001

To the Hawai`i State Reapportionment Commission:

This short memorandum is written to assist the Commission in deciding which population base to utilize in determining how to draw Hawai`i's election districts. Of specific concern to the Commission is the question whether it is appropriate and/or mandatory to try to remove the members of the U.S. military who are not residents of Hawai`i and their dependents from the population base utilized by the Commission.

The courts have given reapportionment commissions some leeway in determining the appropriate population base to utilize, so long as the choice made by the commission is rational in light of community concerned. In the leading case of *Burns v. Richardson*, 384 U.S. 73, 92 (1966), involving an early reapportionment plan in Hawai`i, the U.S. Supreme Court said that the choice whether "to include aliens, transients, short-term or temporary residents, or persons denied the vote for conviction of crime in the apportionment base...involves choices about the nature of representation with which we have been shown no constitutionally founded reason to interfere." The Supreme Court explained that the blanket exclusion of all military personnel from an apportionment base would be unconstitutional, but has characterized a decision to exclude nonresident military as a "constitutionally permissible classification." *Id.* at 92 n. 21 (*citing Davis v. Mann*, 377 U.S. 678 , 691 and *Carrington v. Rash*, 380 U.S. 89). A federal court subsequently ruled that it was constitutionally permissible for Hawai`i to use the list of registered voters as its apportionment base rather than the federal census material. *Burns v. Gill*, 316 F.Supp. 1285, 1294 (D.Hawai`i 1970).

In 1992, Article IV, Section 4 of the Hawai`i Constitution was amended to instruct the Reapportionment Commission to utilize "the total number of permanent residents" as the apportionment base. This change was apparently introduced to exclude nonresident military and their dependents from being counted in the base. An Alaska decision, *Egan v. Hammond*, 502 P.2d 856 (Alaska 1972), has upheld a similar approach as constitutional, but only if the number of nonresident military and their dependents can be determined in a reliable fashion. After appointing a Master who concluded that the determination of residency of military personnel was "a highly subjective and arbitrary process," *id.* at 888, the Alaska Supreme Court ruled that nonresident military personnel and their dependents could not be excluded from the population

base in a manner that was reliable enough to meet constitutional requirements. Twenty years later, the Alaska Supreme Court ruled that exclusion of nonresident military personnel and their dependents "is not constitutionally required if it is not possible to accurately identify those military personnel who are non-residents." *Hickel v. Southeast Conference*, 846 P.2d 38, 55 (Alaska 1992). In that case, the Court concluded that the advisory reapportionment board had acted rationally and constitutionally in deciding not to exclude the nonresident military personnel and their dependents, because the residency data for the military personnel was not available in a reliable format. *Id.* at 56.

The question for Hawai`i's Reapportionment Commission is thus whether it is possible to achieve Hawai`i's constitutional goal of utilizing "the total number of permanent residents" in a manner that is sufficiently reliable to avoid discriminating against military personnel as a class. It is necessary for the Commission to examine the various data sources regarding the military personnel and their dependents to see whether they are sufficiently reliable, in relation to the census data. If the nonresident military personnel and their dependents can be excluded in a reliable and fair manner, i.e., to the same level of precision used to identify other portions of the population base, the Commission is required by the Hawai`i Constitution to do so. If, however, the Commission determines, after evaluating alternative means of identification, that this process of exclusion cannot be conducted in a fair and reliable fashion, then the Commission should utilize the census data covering the total population.

I hope this analysis is helpful. Please let me know if I can assist in any other manner.

Sincerely yours,

Jon M. Van Dyke

Jon M. Van Dyke
Professor of Law

APPENDIX D

Military and Dependent Data Set

Prepared by: David J. Rosenbrock, State Project Manager

Royce A. Jones, Project Manager, Environmental Systems Research Institute

Sherry Amundson, Project Manager, Maptech

Prepared For:

2001

Reapportionment Commission

August 9, 2001

Data to Support Calculation of the Non-Resident Military Population

Data source. The State of Hawaii obtained military population figures from the Defense Manpower Data Center (DMDC) in Monterey, California. DMDC is a U.S. Department of Defense agency for the joint benefit of all four military departments. For the Hawaii Reapportionment and Redistricting Project, DMDC compiled data from the military DEERS file, which is a personnel file describing all military Sponsors and their Dependents. The acronym stands for Dependent Eligibility Enrollment Reporting System.

Population. There is a separate record in the file for each Sponsor and each Dependent. The dependents are broken down into the following categories:

- Spouses
- Children
- Parents
- Ex-spouses

Aggregated by zip code. Due to Freedom of Information Act constraints to protect the privacy of individuals, DMDC could not break down the military population into census blocks or even into streets. The smallest geographic area that they could use was the zip code.

Duty Address vs. Residence Address. There is a Duty Address and a Residence Address listed for each Sponsor. There is only a Residence Address listed for the Dependents. All addresses include a zip code. The Duty Address is the address where the Sponsor is stationed. It is kept current by the Military, updated at the end of every month. If a Sponsor is reassigned to a new location, the file picks it up right away. The Residence address of Sponsors and of Dependents is not always current because it is updated by the Sponsors and Dependents themselves. They have to bring it up to date when they need to get medical attention. DMDC suggests that there is, on average, a three-month lag between the time that the Duty Address is updated and the time that the residence address is updated. The effects of this lag will be covered under the discussion on the data compilation.

Meaning of the Addresses. Usually the zip code of the Duty Address is some special "Federal" zip code that is assigned to the Base for internal mail delivery. It does not have a geographic extent. A Hawaii Duty Address indicates that a sponsor is actually in Hawaii, but it does not indicate exactly *where* he or she lives. A Residence Address does tell where the sponsor lives, but it may not be current.

Dependents do not necessarily live with their Sponsor. Dependents of a Sponsor may or may not have the same Residence zip code as the Sponsor. A divorced spouse might live across town. Any Dependent might live in another state. If the Sponsor is temporarily stationed in Hawaii, the Dependents might not have moved here at all.

Data Compilation Provided by DMDC

The population that was included. First, DMDC established the *Subject Population*. It included all military Sponsors and Dependents of Sponsors where

- the Sponsor's Duty Address was in Hawaii on March 31, 2000 (the Sponsor was here at the time)
- the Sponsor paid their state taxes in one of the other 49 states (the Sponsor was not a Hawaii resident)

How the population was broken down. Second, DMDC tallied the Subject Population by zip code. For each zip code, they calculated the total population and broke it down by category: Sponsors, Spouses, Children, Parents and Ex-Spouses. The result was put into a spreadsheet with a row for each zipcode and a column for each population category.

Percent out-of-state Sponsors. DMDC provided a second spreadsheet for Sponsors who do pay state taxes in Hawaii, indicating that they are Hawaii residents. Comparing the two spreadsheets, we can see the proportion of Sponsors that are non-resident:

	Count	Percent
Non-Resident Sponsors	37,417	98.375%
Resident Sponsors	618	1.625%
Total	38,035	100.000%

Number of out-of-state Dependents. DMDC did not provide state-of-residence information for Dependents. This problem also existed ten years ago when the non-resident military population was processed for the 1991 Reapportionment Plan. At that time, the state of residence of a Dependent was considered to be the same as the state of residence of their Sponsor. In keeping with this precedent, all Dependents included on the non-resident spreadsheet could be considered to be non-residents.

Effects of the 3-month lag between Duty Address and Residence Address. If a Sponsor arrived in Hawaii just recently, their Residence Address might still be listed as their old mainland zip code. This is due to the lag. Of the 37,417 Sponsors in Hawaii, 9,135 of them still show a mainland Residence zip code. We know these people have moved to Hawaii, but the data doesn't show *where* they live in Hawaii. We had to use a formula to distribute them among the Hawaii zip codes.

Data for Dependents is less accurate. If a Dependent arrived in Hawaii just recently, their Residence Address might still be listed as their old mainland zip code. This would be due to the lag. Of the 53,261 Dependents, 13,108 of them show a mainland Residence zip code. But this figure is less accurate than the mainland Sponsor figure. The file includes all Dependents of Hawaii Sponsors, *whether or not the Dependents accompanied the Sponsor to Hawaii*. Some Dependents with a mainland zip code could actually be on the mainland. The13,108 figure is inflated because it includes these actual mainlanders. The problem is that we don't know how many of them are really in Hawaii.

Calculation of Non-Resident Military Sponsor Counts by Census Block

The following basic steps were used to distribute non-resident Sponsors from the zip codes into the census blocks.

- **Distribute 'mainland' sponsors** (whose Residence Address is still listed as being on the mainland because of the lag). First find the percent of the non-resident Sponsors that falls in each zip code. Then, for each zip code, add in that same percent of the mainland Sponsors.
- **Fill military Bases first.** For all census blocks inside military bases, assume that the entire population is military. Based on the DMDC data, calculate the percent of the military population that is non-resident Sponsors, and take this percentage of the population of each military census block. This gives the number of non-resident Sponsors in each military census block.
- **Distribute the remaining sponsors to the off-Base housing areas.** Within the off-Base areas of each zip code, distribute the remaining sponsors proportionately according to the percent of the zip code's off-Base population that falls within each off-Base census block.

	Sponsors	Dependents					
		Total Dependents	Spouses	Voting- Age Children	Non-Voting- Age Children	Parents	Former Spouses
Non-Hawaii Zip Codes	9135	13,108	3,908	736	8,294	136	34
Hawaii Zip Codes	28,282	40,153	15,622	950	23,251	325	5
Total	37,417	53,261	19,530	1,686	31,545	461	39

Figure 1: Summary of Non-resident Military Population, March 31, 2000

Email submitted by Royce A. Jones, ESRI
to David Rosenbrock, Reapportionment Project Office on August 7, 2001.

Non-resident military dependents residing in Hawaii on March 31, 2000

1) DMDC is very confident that they have:

a) created a list of military sponsors whose duty address was Hawaii on March 31, 2000 and who paid state taxes outside of Hawaii.

b) provided us with the aggregated residence zipcodes of those sponsors.

c) provided us with the aggregated residence zipcodes of the dependents of those sponsors broken down by:

- dependent children
- dependent spouse
- dependent parents
- dependent ex-spouse

2) We have no reason to question the DMDC numbers nor their confidence in those numbers.

3) DMDC has not represented to us nor expressed to us any confidence that the dependents reported under 1c above were actually residents in Hawaii on March 31, 2000, nor that these dependents did not pay state taxes in Hawaii.

4) We cannot assume that all the dependents reported under 1c above are "non-resident military dependents residing in Hawaii on March 31, 2000". Some of them, particularly those with mainland zipcodes, may not have been in Hawaii on March 31, 2000, and may have never accompanied their sponsor to Hawaii. Others with Hawaii zipcodes, may be permanent residents of Hawaii, even though their sponsor claims residence outside of Hawaii.

5) The numbers provided by DMDC under 1c describe the total number of dependents of "non-resident military sponsors residing in Hawaii on March 31, 2000". The numbers do not tell us whether or not those dependents ever moved to Hawaii. The numbers do not tell us whether or not those dependents do or do not claim permanent residence in Hawaii.

6) Given the DMDC numbers:

a) we can say that there were 37,417 non-resident military sponsors residing in Hawaii on March 31, 2000.

b) we can say that those sponsors had 53,261 dependents on March 31,2000, including spouses, children, parents and ex-spouses.

c) we cannot say how many of those dependents were in Hawaii on March 31, 2000.

d) we cannot say how many of those dependents claimed Hawaii residency.

7) Therefore we cannot say how many non-resident military dependents were residing in Hawaii on March 31, 2000.

MAPTECH INC.

GIS Specialists P.O. Box 211, Hilo, HI 96721
ph (808) 961-0061 fax (808) 969-3933

Military Acknowledgment of Dependents

These notes describe the eligibility requirements for a person to be recognized as a military dependent by the military, and the circumstances under which they would be included in the DEERS file. We have obtained the following information from the Personnel Support Detatchment, ID Records Processing Division at Pearl Harbor Naval Base.

The DEERS file is used to determine that Sponsors and dependents are eligible for 1) medical benefits and 2) the issuance of an ID card that can be used to make certain kinds of purchases. Once a person is first deemed eligible, their record in the DEERS file is permanent. However, their "eligible" status in the file expires after four years. It must be renewed on expiration in order to be retained.

Initiation of eligibility. In order for people to be recognized as dependents in the DEERS file, their sponsors must present verifying documentation to the Personnel Support Detachment (PSD) on their base. The documentation must verify that the person is a dependent of the sponsor, using birth certificates for children and marriage certificates for spouses. Parents may be declared as dependents if it can be shown that they receive 100% or their support from the Sponsor. (The parents submit an application form, and a determination is made based on the information they provide on the form.) Former spouses that were married for at least 20 years are included for life or until remarriage. Former spouses that were married for at least 15 years are included for one year after divorce, or until remarriage if that comes sooner.

Termination of eligibility. Sponsors are required to report a divorce, and this would terminate the eligibility of most spouses. Children remain dependents of their sponsor until they reach the age of 21, regardless of whether they live with the sponsor, or whether the sponsor and spouse divorce. The eligible age is extended to 23 if they are a full-time student. (A waiver can be filled out for in-state tuition, but the student is still considered to be a non-resident). When someone dies, the sponsor is required to report the death. If no one voluntarily reports the termination of eligibility of a dependent, that dependent's eligibility will at least be terminated automatically when the current 4-year period expires.

Reapportionment/Redistricting Population Base Data Set

Prepared by: David J. Rosenbrock, State Project Manager

Prepared For:

2001

Reapportionment Commission

June 21, 2001

Population Data Set

In March 2001 the Census Bureau released unadjusted block data as the Official Census 2000 redistricting data set. This is known as P.L. 94-171 data files. P.L. 94-171 data files provide small-area census population totals from Census 2000 for the purpose of legislative redistricting as required by Public Law 94-171. The file has four tables:

- PL1. Total population by 63 race categories
- PL2. Total Hispanic or Latino population; not Hispanic or Latino population by 63 race categories
- PL3. Population 18 years and over by 63 race categories
- PL4. Total Hispanic or Latino population 18 years and over, not Hispanic or Latino population 18 years and over by 63 race categories.

Population Total: 1,211,537

Permanent Resident Population Exclusions

- Sentenced Felons:

  Department of Public Safety, End of Month Population Report March 31, 2000, by facility location and can be assigned to specific census blocks.

  Sentenced Felons Incarcerated: 1,416

- Non-resident students:

  The students included in the count are paying the non-resident tuition at the various institutions. The exceptions are HPU, BYU and Chaminade University; they provided a list of students with their records showing a permanent residence

other than Hawaii. All students will be located by their local address and can be assigned to specific census blocks.

Non-resident Student Population: 10,679

- Aliens:

The Census Bureau 2000 P.L. 94-171 data set does not provide for the segregation of alien population figures. We have met with the Immigration and Naturalization Service and they indicated that they could not provide a report that would identify the entire alien population or the location of the alien population. This information could not be extracted from census blocks.

- Non-resident Military:

A request for data concerning non-resident military personnel assigned to units in the State of Hawaii was requested from the Defense Manpower Data Center WEST through local contacts at PACOM.

Total Non-resident Military Population: 32,566

Total Non-resident Military Dependents: 41,430

Total Non-resident Military and Dependents: 73,996

The date that the information was extracted is April 30, 2001. The data set was compiled by searching the Active Duty Pay File (the best source containing both State of Legal Residence and Duty Location State).

non-resident military personnel were identified as having a State of Legal Residence other than Hawaii, but Duty Station Located in Hawaii, and were matched by Social Security Number to the DEERS (Defense Enrollment

Eligibility Reporting System) Medical Point In Time extract, for the same time period, to identify their dependents.

Non-resident military personnel and dependents found in the DEERS file were displayed by their "derived" zip code, which is where DEERS holds the individual's, (e.g., non-resident military personnel or dependent) to actually live. The result contains some curiosities: several zip codes show large numbers of dependents but only a very small number of non-resident military personnel. It is assumed that the small number of non-resident military personnel is due to the possibility that the non-resident military personnel are listed under their unit zip codes, which in the case of the Navy for example, all fall in a block assigned to Fleet Post Office, San Francisco, CA.

The state's consultant is working with local commands to refine this artifact to produce numbers that more accurately reflect the Active Duty population physically present in Hawaii. The non-resident military personnel and their dependents are located by their local zip codes and can be assigned to specific census blocks.

STATE OF HAWAII
1991 REDISTRICTING

TECHNICAL DOCUMENTATION

SOCIAL SCIENCE RESEARCH INSTITUTE
UNIVERSITY OF HAWAII AT MANOA

SEPTEMBER, 1991

3. MILITARY

3.1 CONCEPTUAL BACKGROUND

3.1.1. Total Population vs. Adjusted Population

The concept of using Total Population data to redistrict the State Legislature has always been questioned because of the high percentage of military on the island of Oahu. This figure has fluctuated in the 10-15% range since 1980. The military population has been concentrated in the Pearl Harbor, Waipahu-Ewa, Schofield, and Kaneohe areas. The considerably dilutes the representation by legislators from these particular areas resulting in a situation where the legislators represent a significantly smaller number of voters than other areas.

While the use of Registered Voters compensates for this problem, Registered Voters have consistently been challenged as an appropriate population base for redistricting. This leads to the Adjusted Population base, which is defined as Total Population less Non-Resident Military.

3.1.2 Data Requirements and Availability

There was no available data file which would enable the: (1) identification of active military personnel; (2) determination of the ages of the military and their dependents; (3) identification of the place of residence to the 1990 Census Tract/Block level such that they could be subtracted from 1990 Census block level data to determine the number of non-resident military per block; and (4) identification of the state of legal residence to separate the non-resident military from the resident military.

Available current sources were large area samples and could not be used on areas smaller than state level or large areas within a county. These files were Health Surveillance (Department of Health), Current Population Survey (U. S. Census Bureau), and Survey of Income and Program Participation (U. S. Census Bureau).

3.1.3 Estimates of Military Population

Preliminary estimates of the military population were provided by the United States Pacific Command in "Military in Hawaii -- Statistical Information and Economic Impact," a brochure issued in 1988.

SERVICE	ACTIVES	DEPENDENTS	TOTAL
AIR FORCE	6,224	9,213	15,437
ARMY	18,802	25,221	44,023
COAST GUARD	1,101	910	2,011
MARINE CORPS	10,489	8,265	18,754
NAVY	12,099	22,847	34,946
TOTAL	48,715	66,456	115,171

These figures, which do not include shipboard personnel for the Navy, were used as guidelines to crosscheck the processing of data for the military.

3.2 OVERVIEW OF MILITARY PROCESSING

(1) Contact the Commander-in-Chief, Pacific (CINCPAC) for assistance in the getting required data from the respective services and meet with representatives of the respective services to determine whether the required data were available.

(2) For services with consolidated personnel databases, meet with personnel officers and/or computer specialists to arrange computer-readable transfer of available data items.

(3) For the Army, coordinate with the Western Command (WESCOM) to administer a survey to collect required data from 27 commands on a sample basis.

(4) Determine processing requirements to estimate missing data from each of the computer-supported services.

(5) Fill in missing record data for computer-supported services.

(6) Expand current data files to make up the difference between expected number of military vs. actual number in the files transmitted.

(7) Assign Census Tract and Block designations to those with addresses; estimate the location of residence for those without addresses. For barracks personnel, assign the Census Tract and Block based on the ZIP or APO code.

3.3 DATA REQUIREMENTS

The data items needed for establishing the number of non-resident military and their dependents under 18 and 18 and above were:

- Barracks or non-barracks resident

- Family member number
- Whether family member was Active Military or not
- Date of birth or age
- Street address: number, street name, street type, apartment or house number
- State of legal residence

3.3.1 Definition of "Residence"

The definition of "state of legal residence" was a consistent problem over all of the services. Among the possible definitions relevant to active military personnel are: (1) state of legal residence; (2) state in which state taxes are paid; (3) state of entry into the service; (4) state in which the active serviceperson votes; and (5) state the active service person wants to be shipped upon termination from the service.

The declaration of residency for the state of Hawaii is also problematic. In essence, the qualification of residency for Hawaii can be satisfied by payment of State taxes, voting, or simply by virtue of having lived here for a period of time. The definition is difficult to operationalize given the data available.

There is no way to trace the state in which the person votes, if they do at all; similarly, residence for a period of time neither establishes residency nor disconfirms it.

Residency appears to be a either a matter of convenience or a matter of personal benefit. If anything, residency would tend to be overestimated. The following conditions are noted: (1) Hawaii residents claiming residency elsewhere because of lower or no state taxes while their families are living here; and (2) claiming of residency by service personnel for the purpose of obtaining in-state tuition at the University of Hawaii or the Community Colleges but who vote and pay taxes elsewhere. This is similar to college students from Hawaii establishing residency in other states in order to qualify for in-state tuition rates. Since the number of non-resident military is greater than the number of resident military, it would appear that the number of persons unofficially claiming residency in Hawaii would be greater than Hawaii residents in the military claiming residency elsewhere.

The entire question residency is characterized by a lack of a consistent rule to apply. In the end, the only common item within the files of the various services was the state in which they paid their state income tax, which is needed for payroll purposes. The state in which active military personnel paid their taxes was used as the state of residence for the Air Force, Coast Guard, Marines, and Navy. Army personnel, whose data was gathered by a survey rather than being extracted from a file, were asked for their "state of legal residence."

3.3.2 Residence of Dependents

No information on the state of residence of dependents was available. Since it is reasonable to expect that dependents would follow the active military upon discharge from the service, their state of residence was considered the same as the active person in the family.

3.3.3 Age of Dependents

For redistricting purposes, the only interest in age was whether the active person and the dependents were age 18 and over or not. The age of spouses was not available in the files received from the Air Force. No information of the age of dependents was available from the Navy. The rationale and procedures for estimation of these ages is discussed under section 3.4, **GENERAL ESTIMATION PROCEDURES.**

3.3.4 Multiple Actives within One Family

The indication came from Army data. This information did not exist for the rest of the services. The Army data showed that the percentage of an active person having a spouse also in the service was less than 1 in 500. This was inconsequential enough to ignore.

3.3.5 Addresses

The original plan for the addresses was to parse the street numbers and street names into separate fields for matching against the Address Matching file. Several problems were encountered, the most difficult of which were:

- placement of barracks residents
- no addresses
- erroneous street names
- mainland addresses
- erroneous zips

The files that were produced by the Air Force, Marines, and Navy contained ZIP or APO codes without addresses for barracks residents. From the ZIP or APO codes, the base could be identified and the population subsequently placed in the correct Census Tract and Block.

The data from the respective services also contained a substantial number of records without addresses. The primary reason was that personnel had recently arrived and had no local address available at the time the file was extracted.

There were also numerous occurrences of misspelled street names. In most cases, the residence address could be deduced by the ZIP code and close spelling in the areas near the respective bases. In other cases, the residence had to classified as unknown and distributed manually or statistically.

In some cases, the addresses in the file were mainland or international addresses and had to be considered unknown. For unknown ZIP codes with no local addresses, the place of residence was considered unknown.

3.4 GENERAL ESTIMATION PROCEDURES

The incomplete information of the data from the services left several areas to be estimated from known data or from statistical procedures. The following data items needed estimation:

- Age of Spouse for the Air Force and the Navy
- Age of Dependents for Navy
- Estimation of Local Addresses
- Insufficient Counts in the Files from the Services

The general procedure for estimating the missing data is specified here, with service-related details discussed in the following sections.

3.4.1 Estimation of the Age of Spouse

The age of spouses were not available in the files from the Air Force and the Navy. The only significance in the age of the spouse for the purpose of redistricting is whether they were 18 or not. The age of the spouse was assumed to be the same as the age of the active service person. The reasoning was based on the rule that one of the requirements for joining the service was being 18 or older.

Several deviations from this age requirement were noticed, but the number was not significant. Spouses were generally the approximate age of the active service person. Examination of Army data indicated that the number of spouses below age 18 for active military 20 or under was less than two-tenths 1%. In the overall military population, the percentage of spouses under 18 was insignificant.

3.4.2 Estimation of the Age of Children and Other Dependents

As in the case of spouses, the age of dependent children living with the active service person in Hawaii was critical only insofar as they were under 18 or 18 and over. Ages of children were provided for all services except the Navy. To estimate the age of the children of active Navy personnel, Army statistics were used.

Army family composition was analyzed by age of active person and family size. The average number of non-spouse dependents over 18 was determined for each age of the active military person from 18 through 64 for family sizes of 2 through 6 and 6 and above. The appropriate number of dependents over 18 was then inserted into the records of active Navy persons with matching ages and family sizes.

In a small number of cases, dependents other than children were found in the families of the active service person. These were assumed to be parents or other adults. The percentage of these was extremely small.

3.4.3 Estimation of Local Addresses

The files from the services contained a substantial number of cases with no local addresses, due ostensibly to recently assigned personnel or personnel in transit. Other related problems, discussed below, were the concentration of the Army sample and a discrepancy between the counts of persons reported by the respective services and the Census Bureau for the same geographic areas.

To estimate the residence of the service personnel with unknown addresses, the distinction between bachelors and families was critical. Census data from the PL 94-171 file provided the counts for Total Population and population 18 and over. To insure that the estimated military counts for Census Tracts and Blocks would conform to Census figures, the placement of persons with unknown addresses was done on a block basis. The criteria for placement of military personnel was that the Census counts for the total number of persons and the number of persons 18 and over for any block could not be exceeded.

The priority order for placement was first, to fill the military base(s) for the branch of service; second, to fill off-base military housing complexes for the branch of service; and third, to place the personnel in the surrounding community, based on areas in which service personnel with known addresses were already residing. This eliminated the possibility of randomly placing military personnel into extremely high cost areas and areas of predominantly local populations.

3.4.4 Insufficient Counts in Files from the Services

The number of active military and dependents were initially provided by the respective branches of service. The files received were short of these counts due to new arrivals whose records had not yet been updated in the personnel files. Except for the Coast Guard, which provided a 100% count, and the Army, which was sampled and weighted to meet the expected count, the files were adjusted to the figures provided by CINCPAC.

The adjustment was handled manually based on the following statistical premises: (1) that the missing actives and dependents had characteristics similar to those already in the file; and (2) that the missing actives and dependents would fit into the framework of counts established by the Census Bureau.

The method used for making up the insufficient counts was: (1) to duplicate all of the records in the current files for each of the branches; (2) to select records to fit the numeric criteria established by Census Bureau counts up to the limit of the shortfall; and (3) to place these into blocks according to the procedures described in 3.4.3 above.

3.5 SPECIFIC PROBLEMS AND RESOLUTION

Each of the services except the Coast Guard had an unique set of circumstances which required independent resolution.

3.5.1 Air Force

The Air Force was able to produce computer-readable files for most of the information required.

The only missing item was the age of the spouse. This was resolved by equating the age of the spouse to the age of the active service person on the assumption that the ages would be similar. The only effect pertained to married active personnel who were 18 or near 18 with spouses living in Hawaii. Statistics from Army data indicate that only two-tenths of 1% of married actives under age 20 had spouses under 18. It was therefore reasonable to assume that equating the age of the spouse to the age of the person on active duty would yield the desired break between those under 18 and those 18 and over.

3.5.2 Army

Unlike the other services, the Army in Hawaii is organized by commands, i.e., functional groupings. The Western Area Command (WESCOM) at Fort Shafter is the primary Army organization and coordinates the activities of 8 major groups, ranging in size from the 11,000-member 25th Infantry Division at Schofield to the 13-member 9th Corps at Fort DeRussy. There are 19 other commands, covering organizations like Tripler Army Medical Center and the Recruiting offices.

Consistent with the "stovepipe" command structure, there was no centralized database containing the home addresses of 18,800 actives and their dependents. Further, at any one time, it was highly unlikely that all Army personnel assigned to

Hawaii units would be in the islands. At the time that the Census was taken, 5,000 troops were away on maneuvers.

Given these characteristics of the Army and considering the options available, it was determined that a weighted sample of Army personnel would produce the most accurate file of actives and their dependents for the purposes of redistricting. After a survey form and a sampling frame were developed, WESCOM coordinated the distribution and collection of questionnaires among all 27 commands. A copy of the survey form is found in the Appendix.

The sampling frame for each of the commands was based on:

Units with fewer than 100 personnel	100%
100-999 a	60%
1,000 - 4,999	50%
5,000 - 10,000	40%
Over 10,000	30%

Since one-third of the 25th Infantry Division was expected to be out of the state during the data collection period, a 40% sample was taken to ensure an adequate return.

The sampling frame resulted in an expected survey count of approximately 7,350. Some of surveys were unusable because of illegible addresses, non-Hawaii addresses, and non-existent ZIP codes.

Following editing and data entry, the Army data was statistically analyzed and weighted accordingly to compensate for: sample weight, family size, and geographic distribution.

In the sample weight computations, the number of surveys received was weighted to reflect the full personnel complement for each of the commands. For a command with a 30% response rate, the file was duplicated 3.33 times to bring the number of military and dependents to the full expected count.

The process was not straightforward. Because the various commands were in charge of the distribution of survey forms, there was no control over the stratification of the sample with respect to bachelors and sizes of families. In the 25th Infantry Division, for example, an entire barracks was surveyed. This had the subsequent effect of concentrating a heavy bachelor population in one small area, to the detriment of the family sample. The distribution of records had to be weighted again to reflect fewer bachelors and more families. The family

composition was weighted such that the average active-to-dependents ratio from CINCPAC data for the Army was maintained.

Referring to the problem of matching Census Bureau block counts discussed in 3.4.3 and 3.4.4, the data files had to compensate for the sampling distribution of bachelors and families versus the Census counts of total population and 18-and-over population. This could be deduced by whether the Census counts indicated a high 18-and-above to total-population ratio or not. The higher the percentage of the 18-and-above age group, the higher the probability of a singles area. If the sampling distribution approached the Census limits, adjustments to move bachelors into high ratio areas and families into low ratio areas were carried out.

3.5.3 Marines

The Marines were able to provide all requested data for their active personnel and dependents. The major problem encountered in the processing of the Marines was the large number of missing addresses. By prior agreement with the Marines' personnel staff, on-base residents needed only ZIP codes to identify the Census Tract and Block of their place of residence.

The number of records without addresses, however, exceeded the number that could be housed on base quarters. After adjusting for bachelors and families, the remainder were distributed into the surrounding community according to procedures described in 3.4.3.

3.5.4 Navy

The Navy file had several major problems that made it the most difficult of all of the services to reconcile:

- no ages for spouses or dependents
- shipboard personnel who were not counted in the Census
- high numbers of personnel without addresses

The age problem was resolved through procedures described in 3.4.2.

The classification of whether Navy personnel were land-based or ship-based was critical to the correct counting of the service. The Census count of persons aboard all commercial and military vessels was conducted separately from the Hawaii population. The Census Bureau was vague on how military personnel aboard ships were counted.

By the Navy's definition, all persons aboard ships are counted as part of the base to which the ships are assigned. All land-based personnel, submariners, and active personnel with families ashore are considered land-based. Single persons and geographic bachelors (i.e., married persons with families not in resident Hawaii) aboard ships are considered ship-based. The Navy files contained land-based personnel only. The rosters of all shipboard personnel are maintained on ship computers and were not available.

Though it could not be verified with the Census Bureau, the population counts for Hawaii did not appear to include shipboard personnel. The Census counts for Pearl Harbor and Barbers Point appeared to be low, even for land-based personnel. The approximately 11,700 personnel aboard ships were therefore not counted, either in the Census for Hawaii or in the Navy files.

The ramification of the shipboard problem is whether any of the shipboard personnel were Hawaii residents. This became a moot point because shipboard personnel appeared to be treated as active military stationed elsewhere. They are counted as state residents for the purposes of the national reapportionment but do not appear in the state counts because they have no local addresses.

High numbers of personnel without addresses were a problem in that they could not be assumed to be base residents. This was evident by the fact that the base population counts and nearby military housing counts were exceeded before the non-address actives and dependents could be fully placed. A substantial number of Navy personnel were therefore distributed into the surrounding community.

3.6 FILE INTEGRATION

In preparation for merging the military data with PL 94-171 counts, the files for the individual services were combined and totaled by Census Tract and Block. For each Block, Total Military, Military over 18, Resident Military, and Resident Military over 18 were computed. Final adjustments were made to ensure that the number of military and dependents over 18 preserved enough of the population to allow Registered Voter counts to fall within the available remaining population.

The final counts of the military population are found in the appendices. These counts are within 1-2% of the figures released by the Department of Business and Economic Development. The differences between the counts estimated by the branches of the service and DBED are partly definitional and partly the result of using different sources for estimation. The data for redistricting followed the data files provided by the branches of the service more closely because of the need to link the data with specific Census Tracts and Blocks.